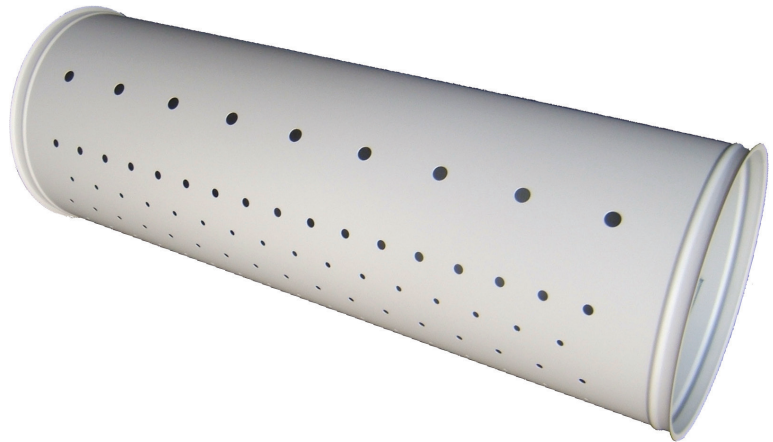


INDUTAIR

HIGH INDUCTION PERFORATED METALLIC DUCT

- Diameters from Ø200 to Ø1400 mm
- TIG continuous welding
- Galvanised finish; pre-coated; powder coated according to RAL table; AISI304 or AISI316 polished or matt stainless steel; copper



Environmental conditions, temperature, humidity and air quality are key elements for wellbeing and climate comfort within enclosed spaces (work environments, commercial premises, sports and recreational premises).

The characteristics of the new generation of casings with greater thermal performance have allowed consumption and the amount of air needed for air conditioning to be reduced, but making it more difficult to evenly wash volumes to be handled with traditional diffusers.

The high-induction micro-perforated duct in the INDUTAIR range with its diffusion characteristics and sizing specifically suited for the space to be treated, makes up for the limitations of traditional diffusion systems and proves to be an excellent solution that can be adopted in a vast range of plant applications.

The speed of the out-going air, in the initial part of the duct, has a tangential component due to the speed in the pipe, so it pushes the room air towards the end part of the duct and then sucks it back to the initial part, thereby generating longitudinal circulation in the room as well as perpendicular circulation.

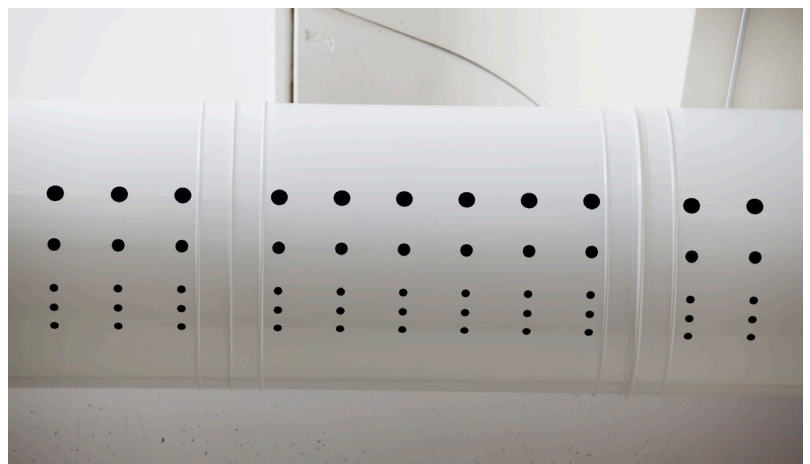
The sizing of the micro-perforated duct, performed exclusively using the design data of the specific space to be treated provides multiple advantages compared to traditional plants, both in economic and technical terms.

ACCESSORIES

- Conical flow rectifier in perforated metal sheet
- Curves, connections, reductions, T-pieces and special parts
- Anti-vibration couplings
- Iris regulation dampers of the butterfly type or with pressure gauge-regulator
- Plenum with direct integration with the UTAs for independent management of air flows and rapid standard operating conditions

Total control of air movement

The smaller diameter holes generate a strong induction effect while the larger ones drive the mixed air in the required direction and at the required speed, ensuring low residual speeds in the occupied zones.



Large-scale mixing and uniformity of temperatures

The high inductive effect generated by the micro turbulences of the air coming out of the holes triggers a strong call for air in the immediate proximity of the duct (induction ratio from 10 to 30), considerably increasing the amount of ambient air in movement with low DeltaT and low speed already a few centimetres away from the duct. This allows standard operating conditions to be achieved very quickly in the entire volume of handled air, enabling effective mixing and extremely even temperatures, both in a longitudinal and vertical direction, thus maintaining very low levels of stratification.

No stagnation zones

The type of diffusion ensures the elimination of any stagnation zones, which are particularly difficult to eliminate with traditional diffusion systems.

Highly-simplified return air ducting

The effective mixing generated by the micro-perforated duct allows return ducting to be drastically reduced, as it no longer requires its distribution located at strategic points within the space: the return grilles located near the UTAs are sufficient.



No risk of the formation of condensate

Due to the particular type of diffusion, which triggers a strong induction, the surface of the duct is permanently affected by a flow of air, even in areas with no holes.

This ensures that no condensation is formed even when the operating conditions mean that the temperature on the surface of the duct are a few degrees below the dew point.

For this reason, the application is also suitable in combination with direct expansion units.

Wide range of possible finishes

- BA polished stainless steel, 2B matt stainless steel (0.5 mm up to Ø250, 0.6 mm up to Ø400, 0.8 mm up to Ø1400)
- Copper, (0.6 mm up to Ø250, 0.8 mm up to Ø500, 1 mm up to Ø1400)
- Galvanised or Galvanised and powder coated (0.8 mm up to Ø750, 1 mm up to Ø1400). Coating in any colour according to the RAL table
- Galvanised and powder coated simil RAL9010 (0.8 mm up to Ø750, 1 mm up to Ø1400)

This means:

- reduced installation costs;
- system engineering savings and energy savings;
- quick installation;
- exposed plant with visual appeal from an architectural point of view.



Construction features

The diffusers are made of steel that is hot-galvanised with the "sendzmir" type procedure covering 200gr/sq.m.; calendered type of construction with longitudinal joint welded with the TIG in-line procedure and transverse attachment for the modules.

The standard nominal length of the elements is 1000 mm (up to Ø400 mm) and 1250 mm (up to Ø1400).

This includes the collars for joining the ducts, saddle support brackets, bottom closures and accessories to assemble them.

The diffusers can alternatively be provided open so that they can be closed on site with rivets or screws to optimise transport costs.



Identification of the elements on site

Each element is indelibly marked, directly with a puncher, with an identification acronym corresponding to the diffusion line specified in the project. This is to assist in cases where there are a number of different INDUTAIR lines being used.



Sizing the diffuser

INDUTAIR perforated metal ducts are specially designed for each project with software-assisted techniques which use mathematical models and CFD systems to check the dew point and establish the right diameters and forms for the holes in order to positively check on all the comfort design requirements for each single installation, in compliance with UNI 10339.

Canale Microforato : Ø 800 Zincato FO

Materiale: Inox Lucido BA

Tipo di giunzione: Fascetta ad omega

Canale Microforato: Prova tutti i diametri

Geometria del canale

Diametro interno: 800.0 mm

Spessore canale: 1.0 mm

Rugosità interna: 1.00 mm

Lunghezza tratto microforato: 820.0 mm

Lunghezza tratto non forato: 165.0 mm

Locale di installazione

Lunghezza canale: 27.0 m

Larghezza zona di influenza: 8.0 m

Altezza zona di influenza: 14.0 m

Distanza dal suolo riferita: all'asse: 13.0 m

Distanza dalla parete riferita: all'asse: 4.0 m

Tipo di staffaggio: a soffitto

Velocità massima ammissibile nel canale: 10.0 m/s

Velocità minima ammissibile nel canale: 0.0 m/s

Velocità massima uscita fori: 10.0 m/s

Fasce forate

n° fasce: 1

Angolo della fascia α: 0.0 °

n° di fori per fascia: 3

ROCCHEGGIANI
care for air

Roccheggiani S.p.A.
via 15 Maggio, 10
60021 Camerano (AN) - Italy
trattamento.aria@roccheggiani.it

Risultati del calcolo

Scelta	Verifica	Diam. (mm)	Press. Statica Risc-Raff (Pa)	Veloc. In Risc-Raff (m/s)	Veloc. H rif Risc-Raff	V.Fori.Risc Min-Max (m/s)	V.Fori.Raff Min-Max (m/s)	Relazione	Relazione
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ø 450 Inox L.BA FO	113.8 - 120.8	12.7 - 12.7	0.07 - 0.30	8.0 - 10.2	8.0 - 10.2	Relaz. Calcolo	Relaz. Sintetica
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ø 500 Inox L.BA FO	107.4 - 113.8	10.3 - 10.3	0.09 - 0.30	8.3 - 9.9	8.3 - 9.9	Relaz. Calcolo	Relaz. Sintetica
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Ø 550 Inox L.BA FO	103.5 - 109.3	8.5 - 8.5	0.09 - 0.29	8.5 - 9.7	8.5 - 9.8	Relaz. Calcolo	Relaz. Sintetica
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ø 560 Inox L.BA FO	102.5 - 108.6	8.2 - 8.2	0.09 - 0.29	8.5 - 9.7	8.5 - 9.7	Relaz. Calcolo	Relaz. Sintetica
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ø 600 Inox L.BA FO	100.3 - 106.3	7.2 - 7.2	0.09 - 0.29	8.7 - 9.6	8.7 - 9.6	Relaz. Calcolo	Relaz. Sintetica

Piscaldamento | **Raffrescamento** | **Note**

Variabile	Posiz. 1	Posiz. 2	Posiz. 3	Posiz. 4	Posiz. 5	Posiz. 6	Posiz. 7	Posiz. 8	Posiz. 9	Posiz. 10
Posizione [m]	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0
Pressione Statica [Pa]	76.3	81.5	86.0	88.0	92.1	95.5	98.4	100.8	102.4	103.1
Pressione Totale [Pa]	120.4	115.7	111.5	108.8	106.5	105.0	104.0	103.4	103.2	103.1
Velocità nel canale [m/s]	8.9	7.7	6.8	6.0	5.0	4.1	3.1	2.2	1.2	0.0
Temperatura dell'aria nel canale [°C]	30.0	29.9	29.8	29.5	29.3	29.3	29.2	29.0	28.7	28.2
Temperatura ambiente [°C]	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Temperatura di parete esterna del canale [°C]	28.7	28.4	28.2	28.8	29.5	28.1	24.5	23.9	23.0	21.7
Temperatura di parete interna del canale [°C]	28.7	28.4	28.2	28.8	29.5	28.1	24.5	23.9	23.0	21.7

— Posizione [m] — Pressione Statica [Pa] — Pressione Totale [Pa] — Velocità nel canale [m/s] — Temperatura dell'aria [°C]

Applica soluzione al Progetto | Chiudi

